

09/341832

510 Rec'd PCT/PTO 08 JUL 1999

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July 8, 1999

BOX PCT

Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

Attorney Docket No. 48015

Re: Transmittal Letter to the United States  
Designated/Elected Office (DO/EO/US)  
Concerning a Filing Under 35 U.S.C. §371

International Application No.: PCT/NL98/00014  
International Filing Date: 8 January 1998

Priority date claimed: 8 January 1997  
Priority application number: 1004956

Inventorship: Jan BERENDS et al.

Title: LIFTING DEVICE WITH MOVABLE LIFTING COLUMNS

Enclosed herewith for entering the national stage in the  
United States is the above-referenced international  
application.

APPLICANT WISHES THAT THE ANNEXES TO THE INTERNATIONAL  
PRELIMINARY EXAMINATION REPORT REPLACE THE APPROPRIATE PAGES  
OF THE CLAIMS AS FILED.

1. [X] This is a FIRST submission of items concerning a  
filing under 35 U.S.C. §371.
2. [ ] This is a SECOND or SUBSEQUENT submission of items  
concerning a filing under 35 U.S.C. §371.
3. [X] This express request to begin national examination  
procedures (35 U.S.C. §371(f)) at any time rather  
than delay examination until the expiration of the  
applicable time limit set in 35 U.S.C. §371(b) and  
PCT Articles 22 and 39(1).

INTERNATIONAL APPLN. NO.: PCT/NL98/00014  
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4. [X] A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. [X] A copy of the International Application as filed (35 U.S.C. §371(c)(2))
- a. X is transmitted herewith (required only if not transmitted by the International Bureau).
- b. \_\_\_\_\_ has been transmitted by the International Bureau. A copy of Form PCT/IB/308 is attached hereto.
- c. \_\_\_\_\_ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. [X] A translation of the International Application into English (35 U.S.C. §371(c)(2)).
7. [ ] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. §371(c)(3))
- a. \_\_\_\_\_ are transmitted herewith (required only if not transmitted by the International Bureau)
- b. \_\_\_\_\_ have been transmitted by the International Bureau
- c. \_\_\_\_\_ have not been made; however, the time limit for making such amendments has NOT expired
- d. \_\_\_\_\_ have not been made and will not be made
8. [X] A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. §371(c)(3)).
9. [X] An oath or declaration of the inventor(s) (35 U.S.C. §371(c)(4)) is:
- [ ] Attached in the regular manner.
- [X] NOT included, but deferred under P.L. 97-247.

INTERNATIONAL APPLN. NO.: PCT/NL98/00014  
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10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5))
11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An Assignment of the invention in favor of the following organization is enclosed for recordation. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST Preliminary Amendment.  
☐ A SECOND or SUBSEQUENT Preliminary Amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☐ Other items of information:  
☒ Form PCT/RO/101 Request (in English/in French)  
☐ Small Entity Declaration Under 37 C.F.R. 1.27  
☒ 3 Sheets of Formal Drawings  
☐ \_\_\_\_\_ Sheets of Informal Drawings  
☒ The content of the paper and computer readable copy of the attached Sequence Listing, submitted in accordance with 37 CFR §1.821(c) and (e), respectively, are the same.  
☒ Kindly appoint as associate attorneys (if not already a principal attorney) or agents:

Herbert I. Cantor, Reg. No. 24,392; James F. McKeown, Reg. No. 25,406; Donald D. Evenson, Reg. No. 26,160; Joseph D. Evans, Reg. No. 26,269; Gary R. Edwards, Reg. No. 31,824; and Jeffrey D. Sanok, Reg. No. 32,169

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ATTORNEY DOCKET NO.: 48015

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[X] The total amount due for the filing fee in this case is:

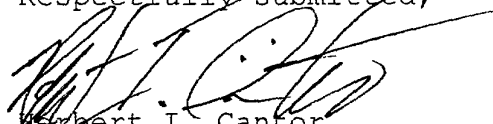
[ ] Based on Small Entity Status

Total Number of Claims: 10  
Total Independent Claims: 6

Basic filing fee, \$930/\$465. . . . .	\$ <u>930.00</u>
Independent Claims above 3, \$82/\$41 ea. . . . .	\$ _____
Total claims in excess of 20, \$22/\$11 ea. . . . .	\$ _____
Multiple dependency penalty, \$270/\$135 . . . . .	\$ _____
Declaration surcharge, \$130/65 . . . . .	\$ _____
English translation surcharge, \$130 . . . . .	\$ _____
TOTAL FILING FEE DUE . . . . .	\$ <u>930.00</u>

Please forward all communications regarding this application to the undersigned at the letterhead address.

Respectfully submitted,

  
Herbert I. Cantor  
Reg. No. 24,392

HIC/jmp

THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY FEES WHICH MAY BE REQUIRED OR CREDIT ANY OVERPAYMENT TO DEPOSIT ACCOUNT NO. 05-1323. THIS FORM IS FILED IN .  
DUPLICATE.

THIS IS A GENERAL AUTHORIZATION EXCLUDING ONLY  
PAYMENT OF THE ISSUE FEE.

510 Rec'd PCT/PTO 0 8 JUL 1999

PATENT APPLICATION  
Docket No. : 1729/48015

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Jan BERENDS et al.

Appln. Not Yet Assigned

Group Art Unit: Not Yet Assigned

Filed: July 8, 1999

Examiner: Not Yet Assigned

For: LIFTING DEVICE WITH MOVABLE LIFTING COLUMNS

PRELIMINARY AMENDMENT**Box PCT**Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Please enter the following amendments to the claims prior to the examination of the application.

IN THE CLAIMS:

Claim 1, line 13, change "characterized in that" to --wherein--;

Claim 3, line 1, cancel "or 2";

Claim 4, lines 1-2, change "any of the foregoing claims" to  
--claim 1--;Claim 5, lines 1-2, change "any of the foregoing claims" to  
--claim 1--;Claim 6, lines 1-2, change "any of the foregoing claims" to  
--claim 1--;Claim 7, lines 1-2, change "any of the foregoing claims" to  
--claim 1--;

Claim 8, lines 1-2, change "any of the foregoing claims" to --claim 1--; and

Claim 9, line 1, change "claims 7 and 8" to --claim 8--.

REMARKS

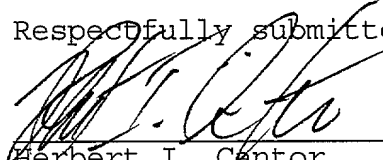
Entry of the amendments to the claims before examination of the application is respectfully requested. This Preliminary Amendment merely removes multiple dependencies and a minor informality.

If there are any questions regarding this Preliminary Amendment or this application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees, be charged, or any overpayment in fees be credited, to the Account of Evenson, McKeown, Edwards & Lenahan, P.L.L.C., Deposit Account No. 05-1323 (Docket #48015).

July 8, 1999

Respectfully submitted,

  
Herbert I. Cantor

Registration No.: 24,392

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HIC:jmp

## VEHICLE LIFT WITH MOVABLE LIFTING COLUMNS

The invention relates to a vehicle lift which comprises at least two separately displaceable lifting columns, as described in the preamble of claim 1.

Such a vehicle lift is known from AT-A-325,811  
5 and is used particularly for lifting heavy vehicles, such as cars, trucks and buses.

The signals required to cause all lifting columns to operate as a unit are transmitted along separate connecting lines. These signals comprise  
10 activating signals for switching on and off the drive means of each lifting column and also monitoring signals for comparing the lifting height of each lifting column. The lifting columns are thus mutually coupled by the connecting lines to form one lifting device which  
15 functions in substantially the same manner as a customary vehicle lift.

The invention has for its object to further develop the known vehicle lift in order to give it more application options.

20 This object is achieved in the vehicle lift according to the invention with the steps characterized in claim 1. The lifting columns are hereby no longer considered as composite parts of a whole device but as separate devices which co-act in random numbers. With the  
25 invention is achieved that a wide diversity of control and monitoring signals can be exchanged between the separate lifting columns mutually and with the operating means, whereby the options for use of the lifting device according to the invention are greatly increased.

30 It is remarked here, that European patent application 0,747,535 relates to a lifting device with at

1b

least two lifting columns, where the connecting lines are  
a data base for exchange of control signals. However,  
this publication relates to transport of a building,  
where the lifting columns are necessarily displaceable,  
5 when a load is resting thereupon. Also, simultaneous  
actuation of the lifting columns is not an issue, but  
keeping the loads on each lifting column below a  
predetermined maximum is. Further, the structural  
requirements on a system for lifting and transporting a  
10 building, and the forces, which need to be generated in  
doing so, are considerably greater or higher than those  
in the case of a vehicle lift according to the present  
invention.

(See further page 1, line 30 of the text as originally  
filed)

AMENDED SHEET



co-acting lifting columns can co-act reliably and, in particular, with great safety.

The measure of claim 3 is preferably applied. The CAN data bus and components therefor are well  
5 standardized, so that the control and operating means can be constructed and embodied in reliable manner. Because this data bus only requires two wires, the connecting lines remain well manageable and little vulnerable.

Applying the measure of claim 4 achieves that  
10 the proper operation of all lifting columns can be ascertained from the operating means. Control signals for setting the safety means into operation can be transmitted in one direction in the closed circuit, which results in a high reliability.

15 According to a further development the measure of claim 5 is applied. The user can select the lifting column which is most suitable for him for the operation of the whole device.

With the measure of claim 6 the energy supply  
20 for each, or at least a number of the lifting columns can take place via the at least one lifting column. It is possible for instance to dimension the supply voltage lines such that a total of four lifting columns are supplied via the one lifting column. The at least one  
25 lifting column can herein be provided with overload protection means which ensure switching off of the power supply in the case of overload of several or all coupled lifting columns.

In a suitable embodiment the measure of claim 7  
30 is applied. The relative position of each lifting column is hereby easily identifiable by the operating means.

A very suitable further application is characterized in claim 8. As pairs are for instance designated the lifting columns which are disposed on  
35 either side of the same vehicle axle. It hereby becomes possible, when a vehicle is supported by more than four lifting columns, for instance to build in or remove an

axle by independently operating the two lifting columns forming part of one pair.

With the measure of claim 9 the separate operation of the lifting columns mutually associated to form a pair can be performed in simple manner from the operating means.

After adjustment of one of the pairs, the other co-acting pairs can be identified simply by the operating means by applying the measure of claim 12.

10 The invention is further elucidated in the following description with reference to the annexed figures.

Figure 1 shows a lifting device of the present type in the position of use.

Figure 2 shows a lifting column of the lifting device of figure 1.

Figure 3 shows schematically six lifting columns mutually coupled by connecting lines.

20 The lifting device 1 according to the invention shown in figure 1 comprises four separately displaceable lifting columns 2 which co-act to lift a bus 4. For the co-action the lifting columns 2 are mutually coupled by means of connecting lines 3 which form part of a digital data bus of the CAN type.

As shown in figure 2, each lifting column 2 comprises a column 6 in which a carriage 7 is guided slidably in longitudinal direction. On the bottom end of column 6 is arranged a support foot 8 with which the column can be deployed stably on a ground surface.

Carriage 7 bears on its lower end a lifting member 9 which is provided with two protrusions 16 which can engage around a vehicle wheel. Carriage 7 can be displaced in column 6 by means of drive means in the form of a hydraulic cylinder 10. This hydraulic cylinder 10 is fed with hydraulic oil under pressure from a hydraulic unit 11, which is per se known and not shown in detail.

Such a hydraulic unit 11 comprises a hydraulic pump driven by an electric motor, which can draw hydraulic oil out of a reservoir and press it under pressure into cylinder 10 in order to move the carriage 7 upward.

5           Control of hydraulic unit 11 takes place with per se known control means which are accommodated in a box 14 on lifting column 2.

          In order to enable displacement of lifting column 2 and positioning with protrusions 16 on either  
10 side of a vehicle wheel, the lifting column 2 is provided with wheels 12. These wheels 12 form together with push-bar 13 a mechanism which is per se known for pallet trucks. By moving push-bar 13 up and downward in pumping manner the wheels 12 can be moved downward relative to  
15 support foot 8 whereby lifting column 2 becomes displaceable on wheels 12. By operating a hydraulic valve the wheels 12 are retracted, whereby support foot 8 comes to lie on the ground.

          In the mobile situation the lifting column 2  
20 can be manoeuvred using push-bar 13.

          Control means 14 comprise per se known switching means for switching on and off hydraulic unit 11. This switch-on/off command is given by activating the operating means 18. Control means 14 for each lifting  
25 column 2 and the operating means 18 are embodied such that they can exchange signals via the connecting lines 3.

          As shown in figure 1, each of the lifting columns is provided with a length of line 3 which carries  
30 on its end a connector which is connected to a connector terminal 15 of an adjacent lifting column 2. Control means 14 and operating means 18 are thus connected in a series as shown in figure 3 for a lifting device comprising six lifting columns.

35           In the shown embodiment two conductors in connecting lines 3 form parts in each case of a digital CAN data bus. Connecting lines 3 can further comprise conductors for the supply current of the hydraulic units.

Because the control means and operating means are mutually coupled by means of the CAN data bus, a variety of signals can be sent to and from each lifting column. For a good co-action with the CAN data bus the control means are based on a microprocessor, so that the different options can be entered by programming.

A suitable possibility, which can be applied particularly when more than four lifting columns are used, is to cause determined lifting columns to be raised and lowered independently. The two lifting columns deployed on either side of an axle of a vehicle can for instance be jointly moved upward and downward, while others retain the adjusted height, for the purpose of changing a vehicle axle.

For this purpose a serial number is assigned to each of the lifting columns for addressing the control signals. In figure 3 these serial numbers are designated schematically with I-VI. Assigning of these serial numbers can take place simply after arranging connecting lines 3. Operating means 18 can perform a program-controlled query over the data bus in order to establish how many lifting columns are connected to the data bus and subsequently assign the serial number to each of these lifting columns. The software can be embodied such that the lifting columns associated in each case with one axle are then mutually associated to form independently operable pairs. In the diagram of figure 3 the lifting columns designated II and V can for instance be operated in suitable manner as a separate pair in order to move an axle supported by these lifting columns separately upward and downward.

Figure 3 shows that each column bears operating means 18, so that the whole lifting device can be operated at each column. It is also possible to embody the operating means 18 as a separate unit which can exchange signals with control means 14 via a cable connection. The cable connection can for instance be made as required with a random column.

As shown in figure 3, the connecting lines 3 are connected in a closed circuit, wherein one lifting column in each case is connected to a subsequent one. Control and safety signals can hereby be fed back via the closed circuit to the operational operating means 18, whereby monitoring of the proper operation of all connected columns becomes possible and the data flow can for instance take place in one direction, which results in a simple and therefore reliable embodiment.

10 Mutually associating determined lifting columns to form an independently operable pair can also take place in a less well developed embodiment of the invention in that an operator enters data concerning the co-acting columns into the control means. Each lifting  
15 column can thus be provided with an independently actuatable adjusting member which, after actuation, places the device in a learning mode. If within a determined time after actuation of the adjusting member on one column a corresponding adjusting member on another column  
20 is actuated, the control device will mutually associate these two columns to form an independently operable pair.

The invention is not limited to the embodiments shown in the figures and described above. Through use of the digital data bus in combination with suitable  
25 programming of the control and operating means a lifting device can be given the functionality desired for a particular application.

AM 34

02.12.1998

CLAIMS

5

1. Vehicle lift, comprising at least two lifting columns which are each separately displaceable in an unloaded state thereof and comprise a column provided with a support foot, a carriage guided slidably in longitudinal direction of this column, a lifting member arranged on a foot end of the carriage, drive means for displacing the carriage in longitudinal direction relative to the column and control means for the drive means, wherein the lifting device is provided with connecting lines for connecting the control means of the columns and operating means connected to the connecting lines for at least simultaneous actuation of the control means of all lifting columns, **characterized in that** the connecting lines form part of a digital data bus and the operating and control means are adapted such that they exchange digital control signals via this data bus.

2. Vehicle lift as claimed in claim 1, wherein each lifting column comprises safety means for switching off the drive means on activation thereof, wherein the safety means likewise exchange digital control signals via the data bus.

3. Vehicle lift as claimed in claim 1 or 2, wherein the digital data bus is of the two-wire CAN type.

4. Vehicle lift as claimed in any of the foregoing claims, wherein all lifting columns are connected by the connecting lines in a closed circuit.

5. Vehicle lift as claimed in any of the foregoing claims, wherein each lifting column comprises operating means and switching means are provided for switching on specific control means of a lifting column as operating means for the whole lifting device.

6. Vehicle lift as claimed in any of the foregoing claims, wherein at least one lifting column is

provided with an electrical power supply connection and a number of other lifting columns are not, and the connecting lines comprise electrical supply lines.

7. Vehicle lift as claimed in any of the foregoing claims, wherein the operating and control means are adapted such that, after arranging of the connecting means, they assign to each of the lifting columns a serial number intended for addressing of the control signals.

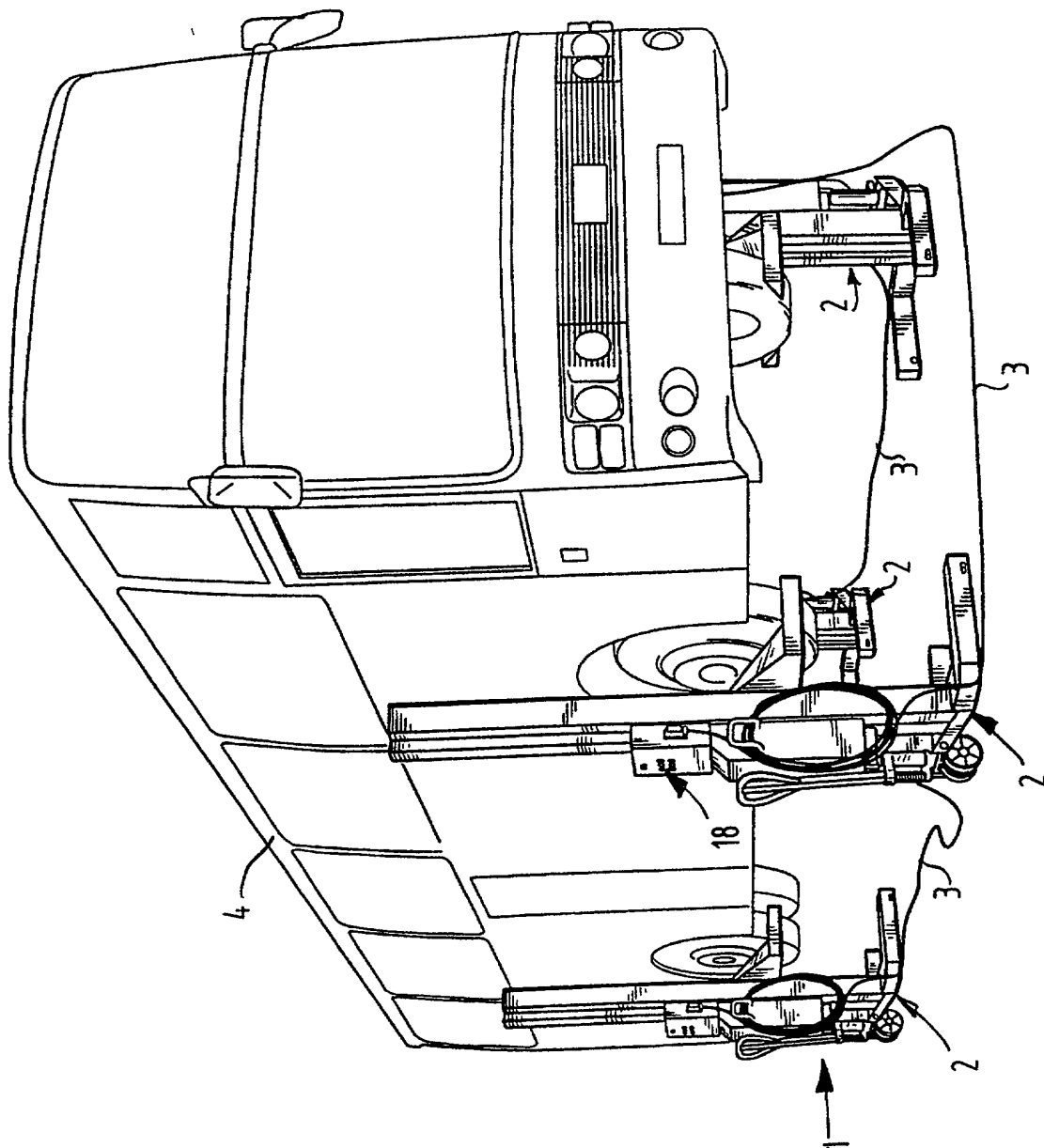
8. Vehicle lift as claimed in any of the foregoing claims, wherein the operating and control means comprise adjusting members for mutually associating determined lifting columns to form independently operable pairs.

9. Vehicle lift as claimed in claims 7 and 8, wherein the adjusting members mutually associate determined lifting columns by recording in the control means the respective serial numbers of the mutually associated lifting columns.

10. Vehicle lift as claimed in claim 9, wherein lifting columns of each of the mutually associated lifting columns standing adjacently in a determined direction are mutually associated to form an independently operable pair.

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FIG. 1

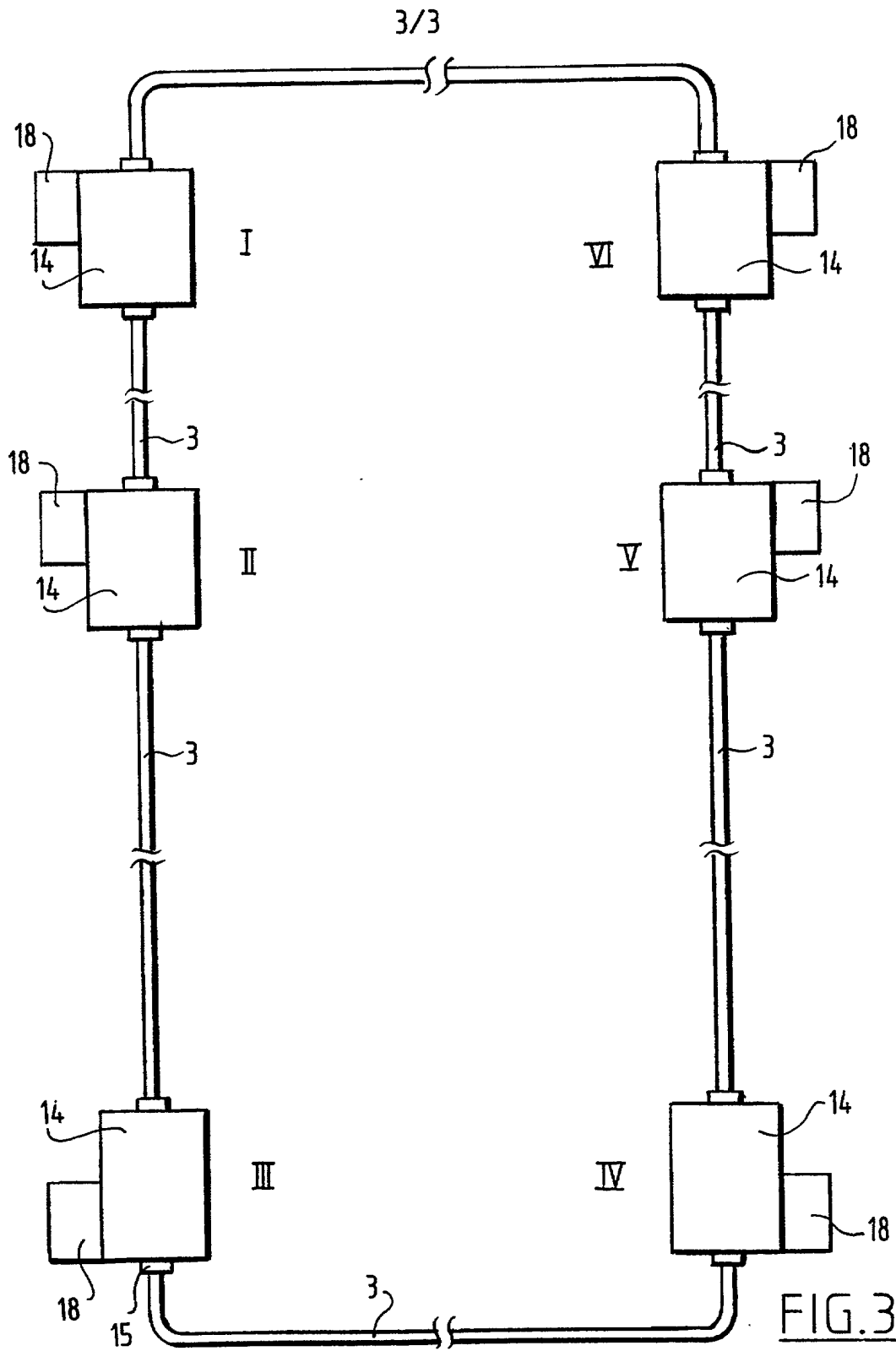




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FIG.2



PLEASE NOTE:  
YOU MUST  
COMPLETE THE  
FOLLOWING:

# COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

ATTORNEY DOCKET NO

Insert Title

As a below named inventor, I hereby declare that: my residence post office address and citizenship are as stated next to my name; that I verily believe that I am the original, first and sole inventor (if only one inventor is named below) or a joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: \* Lifting device with movable lifting columns

Check Box If  
Appropriate —  
For Use Without  
Specification  
Attached

the specification of which is attached hereto unless one of the following boxes below is checked:

☐ The Specification was filed on \_\_\_\_\_ and was assigned

Serial No. \_\_\_\_\_ and was amended on \_\_\_\_\_

☒ was filed as PCT international application number PCT/NL98/00014 on  
January 8, 1998 and was amended under PCT Article 19 on \_\_\_\_\_

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof, or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as follows:

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below:

Prior Foreign Application(s)

Priority Claimed

<u>1004956</u> (Number)	<u>Netherlands</u> (Country)	<u>01/08/1997</u> (Month Day Year Filed)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Month Day Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Month Day Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Month Day Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Month Day Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

All Foreign Applications, if any, for any Patent or Inventor's Certificate Filed More Than 12 Months Prior To The Filing Date of This Application:

Country	Application No	Date of Filing (Month Day Year)
_____	_____	_____
_____	_____	_____

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112. I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status -- patented, pending, abandoned)
_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status -- patented, pending, abandoned)

I hereby appoint the following attorneys to prosecute this application and/or an international application based on this application and to transact all business in the Patent and Trademark Office connected therewith and in connection with the resulting patent based on instructions received from the entity who first sent the application papers to the attorneys identified below, unless the inventor(s) or assignee provides said attorneys with a written notice to the contrary:

PLEASE NOTE:  
YOU MUST  
COMPLETE THE  
FOLLOWING:

Send Correspondence to:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of First or Sole Inventor: Insert Name of Inventor Insert Date This Document is Signed Insert Residence Insert Citizenship Insert Post Office Address	GIVEN NAME	FAMILY NAME	INVENTOR'S SIGNATURE	*DATE
	Jan	BERENDS	<i>Jan Berends</i>	AUG 31 '99
	RESIDENCE (City, State & Country)		CITIZENSHIP	
	Buitenpost, The Netherlands		NL	
POST OFFICE ADDRESS (Complete Street Address including City, State & Country)				
De Zeilen 29, NL-9285 ML Buitenpost, The Netherlands				
Full Name of Second Inventor, if any: see above	GIVEN NAME	FAMILY NAME	INVENTOR'S SIGNATURE	*DATE
	Jurjen Jan	DE JONG	<i>Jurjen Jan de Jong</i>	AUG 31 '99
	RESIDENCE (City, State & Country)		CITIZENSHIP	
	Buitenpost, The Netherlands		NL	
POST OFFICE ADDRESS (Complete Street Address including City, State & Country)				
Waterlelie 6, NL-9285 LB Buitenpost, The Netherlands				
Full Name of Third Inventor, if any: see above	GIVEN NAME	FAMILY NAME	INVENTOR'S SIGNATURE	*DATE
	RESIDENCE (City, State & Country)		CITIZENSHIP	
POST OFFICE ADDRESS (Complete Street Address including City, State & Country)				
Full Name of Fourth Inventor, if any: see above	GIVEN NAME	FAMILY NAME	INVENTOR'S SIGNATURE	*DATE
	RESIDENCE (City, State & Country)		CITIZENSHIP	
POST OFFICE ADDRESS (Complete Street Address including City, State & Country)				
Full Name of Fifth Inventor, if any: see above	GIVEN NAME	FAMILY NAME	INVENTOR'S SIGNATURE	*DATE
	RESIDENCE (City, State & Country)		CITIZENSHIP	
POST OFFICE ADDRESS (Complete Street Address including City, State & Country)				

\*Note: Must be completed — date this document is signed.